ORIGINAL

TEP
Tucson Electric Power
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Tucson, Arizona 85702

November 14, 2016

Tom Forese, Commissioner
Arizona Corporation Commission
1200 West Washington Street
Phoenix, AZ 85007

Re: Tucson Electric Power Company's Response to Commissioner Forese's Letter Docketed September 29, 2016.
Docket No. E-01933A-15-0322 and Docket No. E-01933A-15-0239

Dear Commissioner Forese:

Tucson Electric Power Company ("TEP" or "Company") has long recognized the potential economic and reliability benefits of linking its electrical system with the electrical system in Mexico. The energy exchanges made possible through an international interconnection could bolster system reliability, improve resource availability and create new emergency assistance options, ultimately making electric service more affordable and reliable on both sides of the border.

TEP with its sister company UNS Electric, Inc. ("UNS Electric") and Hunt Power, L.P. ("Hunt") are exploring the possibility of building an interconnection project with Mexico and plan to solicit interest from potential users by the end of this year. Mexican providers may be interested in purchasing price-competitive power from the United States, placing TEP in a position to facilitate bi-directional power transactions by providing the path for transmission between our two countries.

Perhaps most importantly, a successful interconnection project could bolster reliability for TEP and UNS Electric customers. For instance, utilities on both sides of the border could support each other in times of crisis, providing new access to electricity and ancillary services like voltage support. Additionally, by increasing transmission revenues through increased utilization of the transmission system, such a project could also help lower transmission rates for customers and offset the cost of upgrades to equipment that serve all customers in south eastern Arizona.

Early Expansion Efforts

In the early 1990s, TEP participated in a joint U.S. Department of Energy ("DOE") study with Mexico's state-owned Comisión Federal de Electricidad ("CFE") to follow up on a 1980 study that examined the potential for increasing cross-border electricity exchanges. In a letter of thanks to TEP at the conclusion of the project, the DOE recognized the importance of exploring how such transactions could provide benefits for the U.S. but left it to the utilities to identify and pursue specific interconnection projects.

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The March 1991 United States/Mexico Electricity Trade Study identified potential upgrades to the electrical system in the Mexican state of Baja California and a significant new interconnection from Arizona to the northern region of Mexico. One recommendation in the report suggested the establishment of "...a major transmission interconnection between Arizona and CFE's Noroeste (Sonora-Sinaloa) region."

TEP also participated in the 1992 Western Regional Corridor Study in the Western Interconnection. This study took two years and involved 60 utilities as well as two federal land management agencies (the Bureau of Land Management and the United States Forest Service). The study identified potential utility corridors throughout the Western United States. It included state maps showing existing and proposed utility corridors as well as land attributes such as designated wilderness areas, tribal land, national parks, wildlife refuges and military bases. Arizona's map included two existing utility corridors as well as a proposed corridor extending from the Tucson area to the U.S./Mexico border at Nogales.

TEP's participation in the study evolved into more serious discussions in Mexico City about potential interconnection projects. Those conversations included Mexican government officials as well as representatives of Citizens Utilities, which provided electric service to Nogales and other Santa Cruz County communities at the time. Those communities are now served by UNS Electric, TEP's sister company, as the result of a 2003 acquisition of Citizens' Arizona utility assets.

In 1994, TEP began studying environmental factors throughout Southern Arizona that could impact cross-border interconnections. This study was designed to catalog information that would be required to secure approval from the Arizona Corporation Commission ("ACC") and DOE for a cross-border transmission line. This process yielded an extensive collection of data regarding the environmental impacts of using various corridors.

In 1996, TEP met with CFE and other parties to discuss potential direct current ("DC") ties to Mexico. The Company chose not to pursue these options due to their high cost, including the expense of developing a DC converter to control energy flows between two otherwise isolated alternating current ("AC") grids. Later, TEP and CFE explored the potential for a less-costly synchronous AC connection, leading to joint studies that were conducted in 1999.

After these feasibility studies yielded promising results, CFE prepared a letter for submission to the ACC in support of such a project. TEP agreed to develop a line in partnership with Citizens, which was preparing to develop a new transmission line to improve service reliability in Nogales. The proposed project, a 345-kilovolt line linking the Tucson area to Sonora, Mexico, was designed to provide a lower cost solution for Citizens with fewer environmental impacts and allow for energy purchases between the United States and Mexico.

In 2000, TEP applied for ACC approval of a Certificate of Environmental Compatibility for the project and requested DOE approval of a Presidential Permit to allow its cross-border construction. While the ACC approved a viable route for the project, a lengthy federal review process ultimately produced a final environmental impact statement for a different route. TEP

was unable to establish a compromise, and the project was abandoned after an expansion of the Mexican grid made a synchronous connection unviable requiring the DC technology.

Nogales Interconnection

In 2013, TEP initiated discussions with Hunt regarding a potential DC tie in Nogales that could be built and expanded in phases to a total capacity of 300 MW. At the time, Hunt had completed a 300 MW installation connecting Texas and Mexico. The project was expanded from an initial capacity of 150 MW after the first phase became fully utilized for cross-border transfers.

Hunt and TEP commissioned an economic analysis of the Nogales project that identified considerable opportunities along with the reliability benefits previously identified. Hunt and TEP have since met with SENER (the regulator in Mexico), CENACE (the transmission grid operator in Mexico) and CFE to determine their interest in a DC connection and the support a project like the DC tie will bring to Mexico's Energy Reform initiatives. Further, there are some indications that this project could help drive economic development on both sides of the border by providing affordable, reliable energy to the growing industrial base in northern Sonora and south eastern Arizona.

The response from each of these entities has been very positive. As a result of these discussions, Mexico's forward-looking, long-term transmission plan incorporates an international transmission link at the site of the proposed DC tie in Nogales. Additionally, TEP and CENACE have formally agreed to share detailed engineering analysis data for project planning purposes.

On the U.S. side of the border, Hunt and TEP conducted preliminary environmental studies and public outreach in the Nogales area, producing a report that was submitted as part of a Presidential Permit request. The DOE has hired a contractor to develop the environmental assessment that must be completed before it can act on the permit request.

Hunt and TEP also are preparing a filing for the Federal Energy Regulatory Commission requesting treatment of the proposed project as a merchant project with associated negotiated rate authority. While these permitting processes continue, the parties are finalizing interconnection studies that will define the scope of the project and construction requirements.

Although the Nogales interconnection project has yet to receive a Presidential Permit, it has received some presidential recognition. The project was mentioned in a statement issued this summer by President Barack Obama, Mexican President Enrique Peña Nieto and Canadian Prime Minister Justin Trudeau on June 29, 2016, at the North American Leaders Summit in Ottawa, Canada. Collaboration on cross-border transmission projects was identified as a strategy that North American countries can use to encourage economic growth while expanding the adoption of renewable energy and energy efficiency.

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Conclusion

As TEP and UNS Electric continue to explore the potential system impacts and costs associated with cross-border energy sales, the Company remains optimistic that this proposed project can provide reliability benefits for our customers while promoting substantial economic development on both sides of the border.

Sincerely,

Erik Bakken
Senior Director, Transmission & Environmental Services

cc: Docket Control
Parties to the Docket

References:

United States/Mexico Electricity Trade Study, DOE/IE-0020P (U.S. Department of Energy Secretaria de Energia, Minas e Industria Paraestatal) March 1991.

Western Regional Corridor Study (Western Utility Group) copyright 1992.

Press release , The White House, Office of the Press Secretary, June 29, 2016 - Leaders' Statement on a North American Climate, Clean Energy, and Environment Partnership.